



GUIDELINES AND RECOMMENDATIONS

Information About Respirators for Use by Veterinary Staff in the Setting of Suspected Monkeypox

How did CDC determine the recommendation for N-95 respirators for use when examining or caring for animals possibly infected with monkeypox?

The recommendation for N-95 respirators for use when examining or caring for animals possibly infected with monkeypox was based on recommendations for protection against similar diseases, and on preliminary information in the current monkeypox outbreak. CDC is recommending N-95 respirators for health care workers caring for human patients infected with monkeypox virus. That recommendation is based upon CDC's guidance to protect health care workers caring for patients with smallpox, another orthopoxvirus infection. The N-95 respirator is recommended in the smallpox guidance.

At this time the information available to CDC indicates that most cases of monkeypox infection are associated with physical contact with infected animals, rather than aerosol transmission. This suggests that N-95 respirators are appropriate protection in the animal care setting. CDC continues to investigate monkeypox cases with state health departments and clinicians, and will update this recommendation if new data indicate a need.

What is a respirator and what is a NIOSH-approved N-95 respirator?

A respirator is a personal protective device that is worn on the face, covers at least the nose and mouth, and is used to reduce the wearer's risk of inhaling hazardous airborne particles (including dust particles and infectious agents), gases, or vapors. The many types of respirators available include (1) particulate respirators, which filter out airborne particles; (2) "gas masks," which filter out chemicals and gases; (3) airline respirators, which use compressed air from a remote source; and (4) self-contained breathing apparatus, which include their own air supply. The category of particulate respirator can be further divided into (1) disposable or filtering facepiece respirators, where the entire respirator is discarded when it becomes unsuitable for further use due to excessive resistance or physical damage; (2) reusable or elastomeric respirators, where the facepiece is cleaned and reused but the filter cartridges are discarded and replaced when they become unsuitable for further use; and (3) powered air purifying respirators (PAPRs), where a battery-powered blower moves the air flow through the filters.

An N-95 respirator is one of nine types of disposable particulate respirators.

Particulate respirators are also known as "air-purifying respirators" because they protect by filtering particles out of the air as you breathe. These respirators protect only against particles ? not gases or vapors. Since airborne biological agents such as bacteria or viruses are particles, they can be filtered by particulate respirators.

Respirators that filter out at least 95% of airborne particles during "worst case" testing using a "most-penetrating" sized particle are given a 95 rating. Those that filter out at least 99% receive a "99" rating. And those that filter at least 99.97% (essentially 100%) receive a "100" rating.

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Respirators in this family are rated as N, R, or P for protection against oils. This rating is important in industry because some industrial oils can degrade the filter performance so it does not filter properly.* Respirators are rated "N," if they are *not resistant* to oil, "R" if somewhat *resistant* to oil, and "P" if strongly resistant (*oil proof*). Thus, there are nine types of disposable particulate respirators:



N-95, N-99, and N-100;
R-95, R-99, and R-100;
P-95, P-99, and P-100.

Why use a "NIOSH-approved" respirator? How can I tell if a respirator is approved by NIOSH?

NIOSH uses very high standards to test and approve respirators for occupational uses. OSHA requires that employers who provide workers with respirators use only respirators that NIOSH has approved.

NIOSH-approved disposable respirators are marked with the manufacturer's name, the part number (P/N), the protection provided by the filter (e.g., N-95), and "NIOSH." This information is printed on the facepiece, exhalation valve cover, or head straps. A listing of all NIOSH-approved disposable respirators is available at www.cdc.gov/niosh/npptl/respirators/disp_part/particlist.html. **If a disposable respirator does not have these markings and does not appear on one of these lists, it has *not* been certified by NIOSH.** NIOSH also maintains a database of all NIOSH-approved respirators regardless of respirator type (the *Certified Equipment List*) that can be accessed at www.cdc.gov/niosh/celintro.html.

More detailed respirator information has been published by NIOSH, CDC, at www.cdc.gov/niosh/respinfo.html and by the Occupational Safety and Health Administration (OSHA) at www.osha-slc.gov/SLTC/etools/respiratory/index.html. The local OSHA consultation program also can provide information.

Can I use respirators other than N-95 in the veterinary setting?

Yes, workers can wear any of the types of particulate respirators for protection if they are NIOSH-approved and if they have been properly fit-tested and maintained. All of the NIOSH-approved particulate respirators protect workers at least as effectively as the N-95 respirators.

Are surgical masks respirators?

Surgical masks are not designed for use as particulate respirators and do not provide as much protection as an N-95 respirator. Surgical masks will provide barrier protection against droplets, but most surgical masks do not effectively filter small particles from air and do not prevent leakage around the edge of the mask when the user inhales.

How should respirators be used in the veterinary setting?

Veterinary facilities are workplaces, and the principles for safe and effective use of respirators are the same as in any workplace.

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A respirator will work only if it is used correctly. **Thus, the key elements for respiratory protection are fit-testing and training of each worker in the use, maintenance, and care of the respirator.** NIOSH considers each of the nine types of disposable particulate respirators to have similar fit characteristics. Therefore, when a worker is using a respirator, having a NIOSH-approved respirator that fits well is much more important than whether the respirator is an N-95 or one of the other eight types of disposable particulate respirators.

The use of respirators by workers is regulated under the OSHA standard for respiratory protection. The OSHA standard sets requirements for the fit-testing of respirators to ensure a proper seal between the respirator's sealing surface and the wearer's face. The OSHA standard also contains requirements for determining that workers can use respirators safely, for training and educating employees in the proper use of respirators, and for maintaining respirators properly. **NOTE: Fit-testing and the other OSHA-required procedures are absolutely essential to assure that the respirator will provide the wearer with required protection.** Detailed information on respiratory programs, including fit test procedures can be found at www.osha-slc.gov/SLTC/etools/respiratory/index.html.

Where can I be fit tested for a respirator?

For veterinary staff working in settings such as schools of veterinary medicine, the university safety program should be able to provide fit testing or recommend local resources. Similarly, animal control officers and other government employees should contact the safety office in their organization.

For others (e.g., veterinarians in independent practice and their staff, privately run animal shelters), various resources are available:

- Some staff in local health departments and hospitals need respiratory protection while caring for patients with diseases such as tuberculosis, so these programs can describe where their staff receives fit testing.
- The Association of Occupational and Environmental Clinics is a consortium of health clinics specializing in occupational medicine. These clinics frequently can provide respirator fit testing, or identify local resources that conduct fit testing. A list of member clinics is available at www.aoec.org/ClinList.htm.
- Industrial hygienists and safety specialists often conduct fit testing or can identify local resources that do so. These are listed in telephone directories under "Industrial Hygienists" or "Industrial Hygiene Consultants" and "Safety Consultants." Local hazardous materials (HAZMAT) response teams, which are frequently part of local fire departments, and private environmental contractors who conduct hazardous materials responses, are familiar with fit testing as well. Any local industry that uses respirators to protect its workers from respiratory exposure to chemicals or other hazards also will have or be familiar with resources for fit testing.

Where can I purchase a NIOSH-approved respirator?

NIOSH-approved disposable particulate respirators such as the N-95 are sold in some hardware stores. Larger selections of NIOSH-approved respirators are available from safety equipment suppliers. Because not every respirator will fit every potential user, it may be best to consult with the organization that will conduct your fit testing before purchasing the respirator.

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How often do disposable respirators need to be replaced?

Once worn in the presence of an animal presumed to have monkeypox, the respirator should be considered potentially contaminated with infectious material, and touching the outside of the device should be avoided. Upon leaving the room in which the animal is located, the disposable respirator should be removed and discarded, followed by hand hygiene.

If a sufficient supply of respirators is not available, facilities may consider reuse as long as the device has not been obviously soiled or damaged (e.g., creased or torn). Data on reuse of respirators for monkeypox are not available. Reuse may increase the potential for contamination; however, this risk must be balanced against the need to fully provide respiratory protection for health-care personnel.

If N-95 disposable respirators are reused for contact with animals that may have monkeypox, implement a procedure for safer reuse to prevent contamination through contact with infectious droplets on the outside of the respirator.

- Consider wearing a loose-fitting barrier that does not interfere with fit or seal (e.g., surgical mask, face shield) over the respirator.
- Remove the barrier upon leaving the room containing the animal and perform hand hygiene. Surgical masks should be discarded; face shields should be cleaned and disinfected.
- Remove the respirator and either hang it in a designated area or place it in a bag. (Consider labeling respirators with a user's name before use to prevent reuse by another individual.)

For more information, visit www.cdc.gov/ncidod/monkeypox or call the CDC public response hotline at (888) 246-2675 (English), (888) 246-2857 (Español), or (866) 874-2646 (TTY)